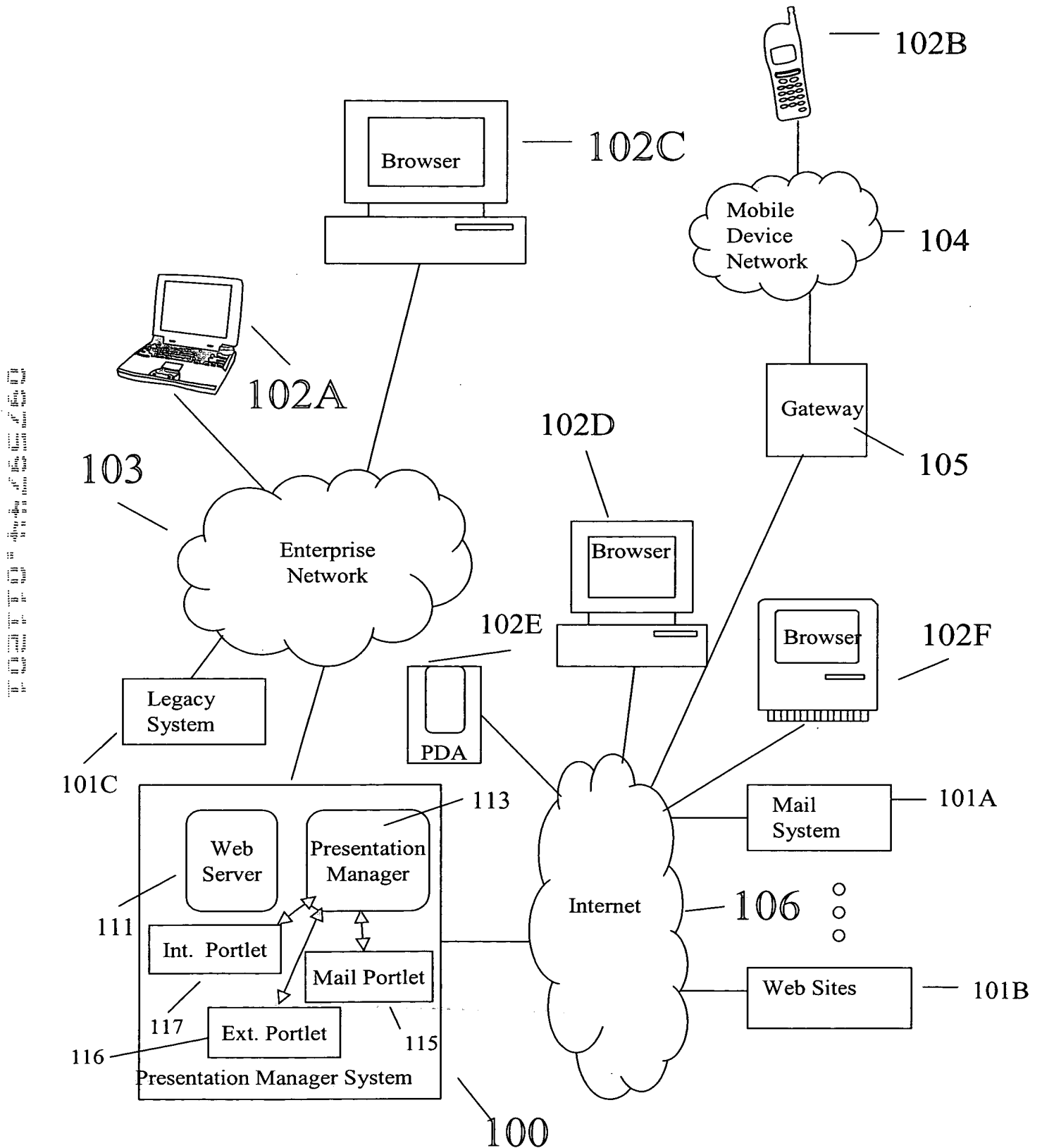
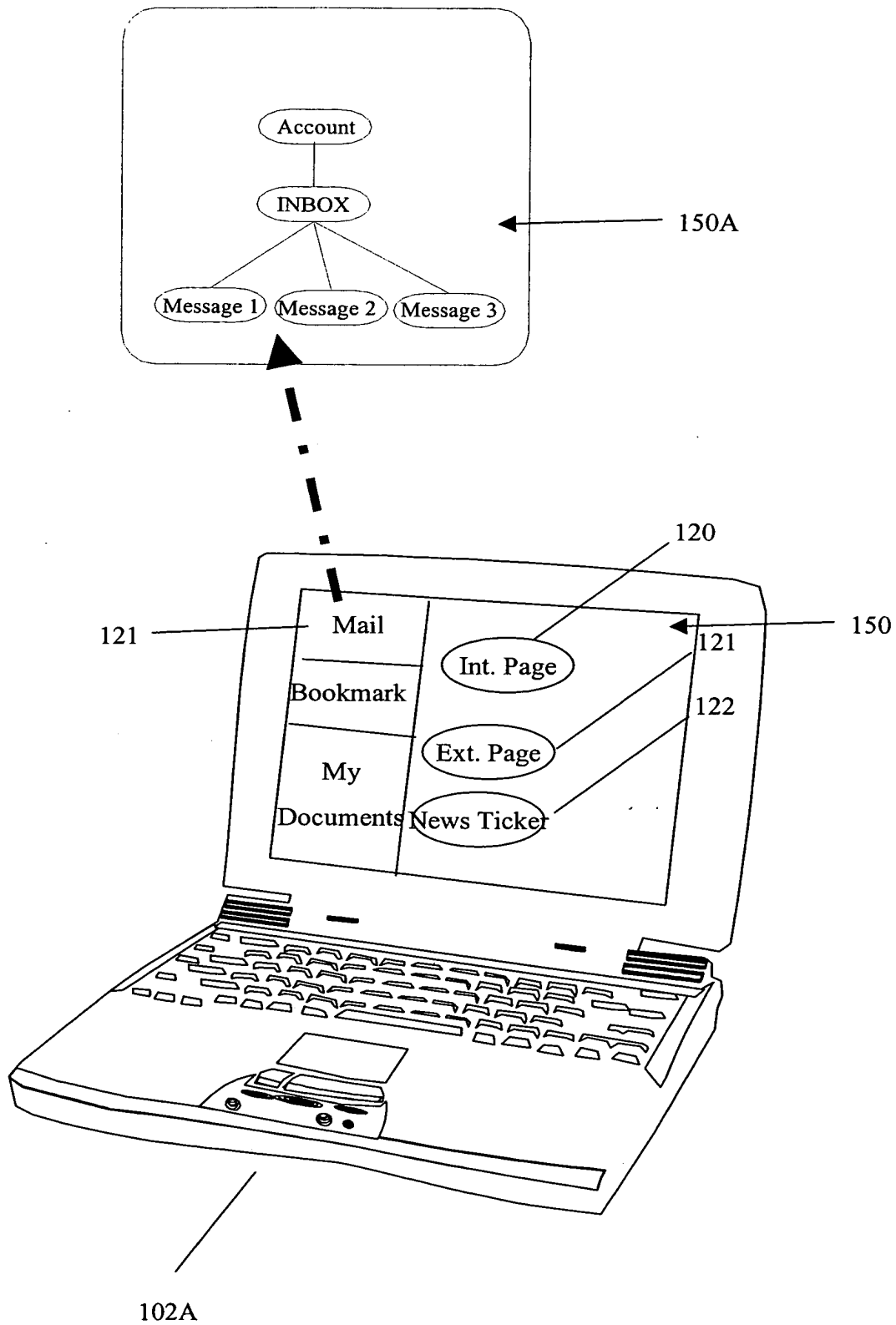
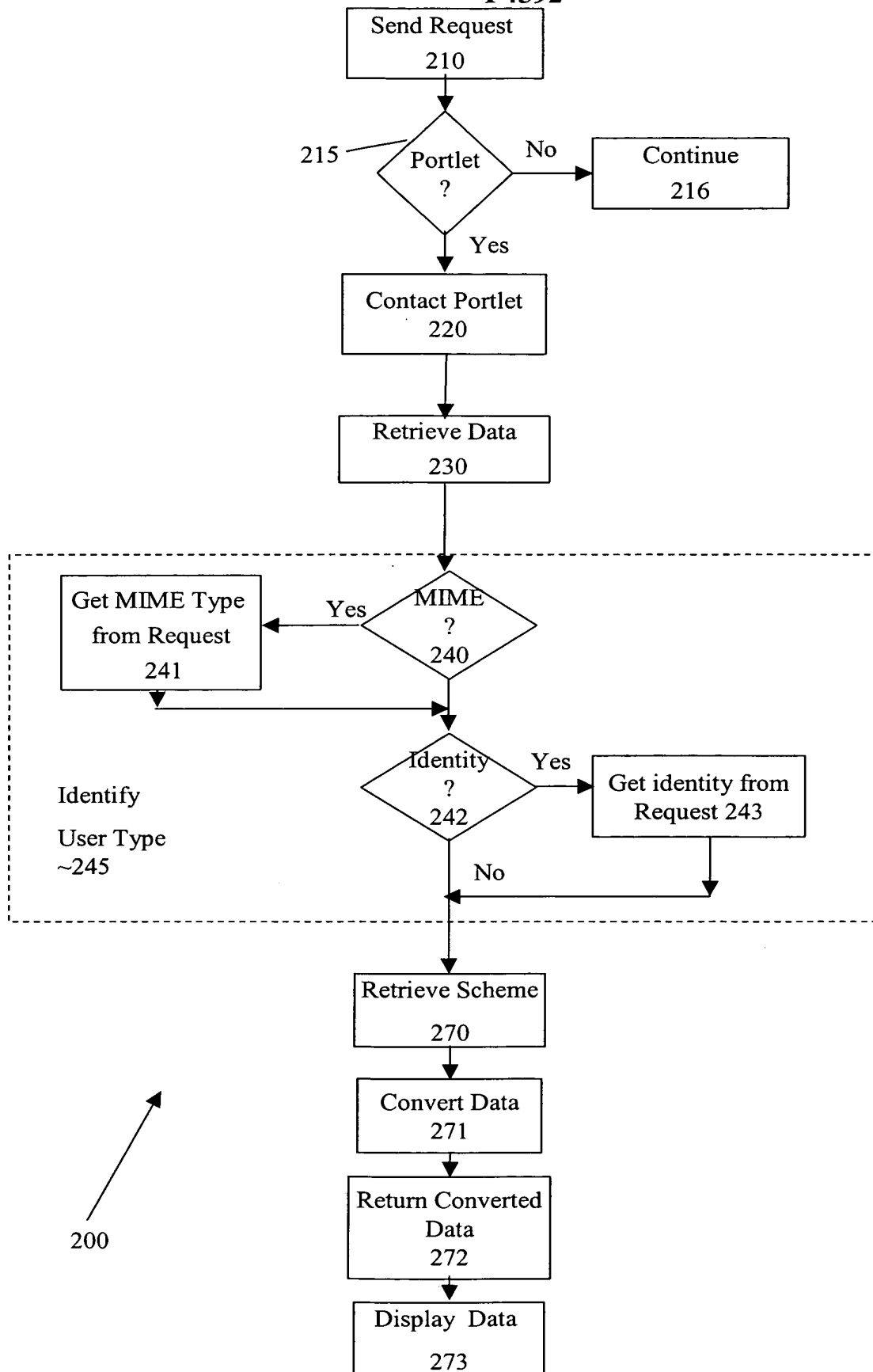
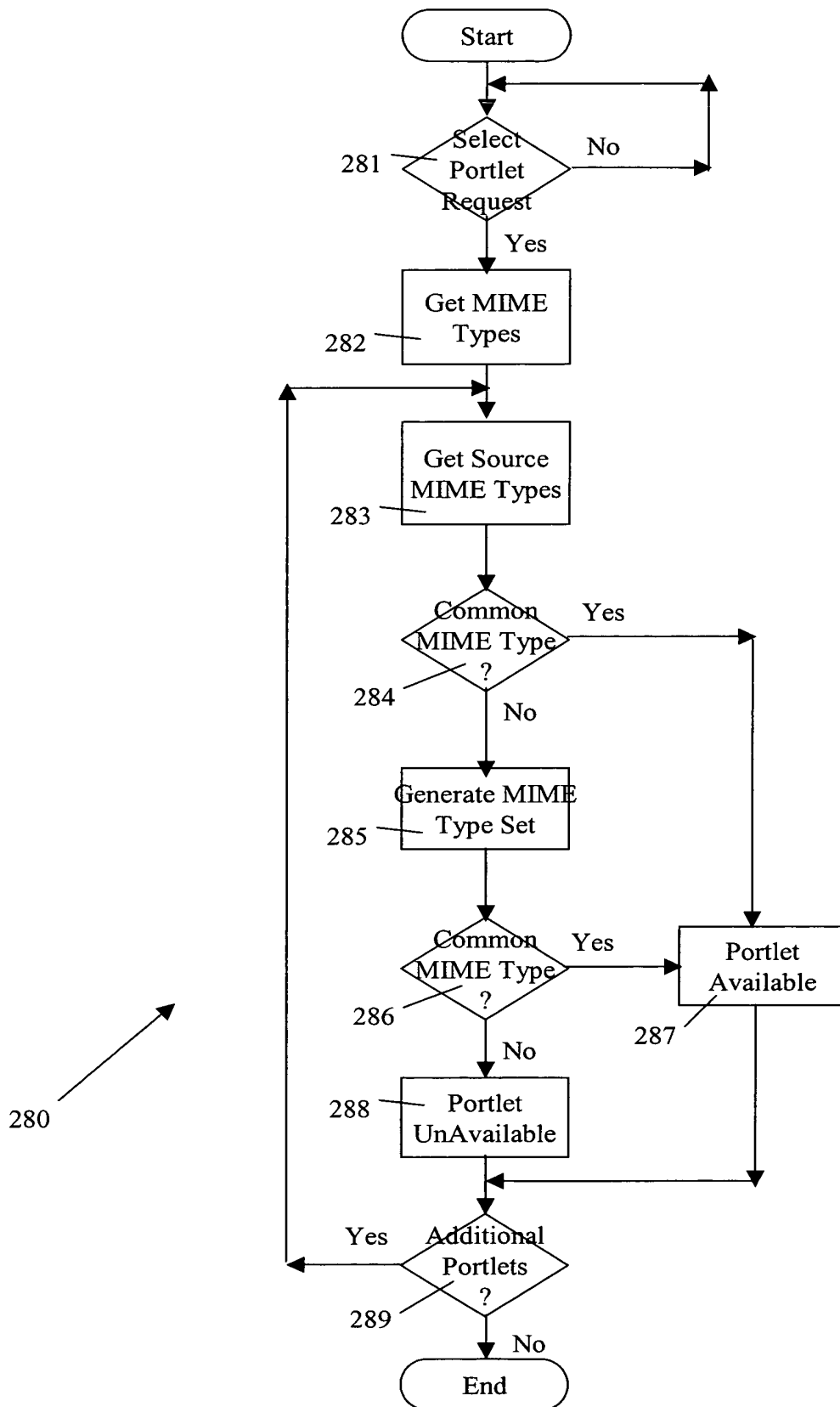


Fig. 1A









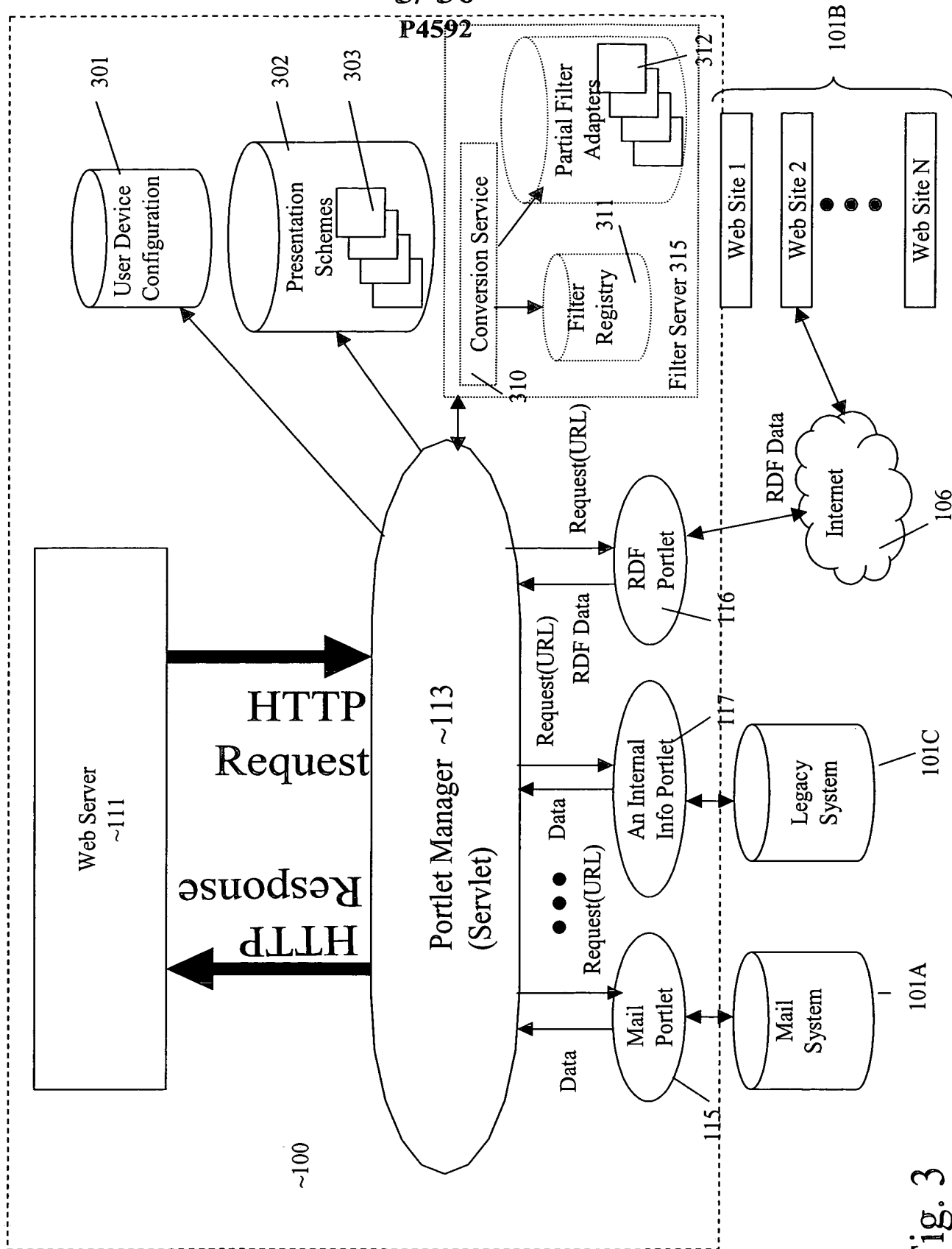
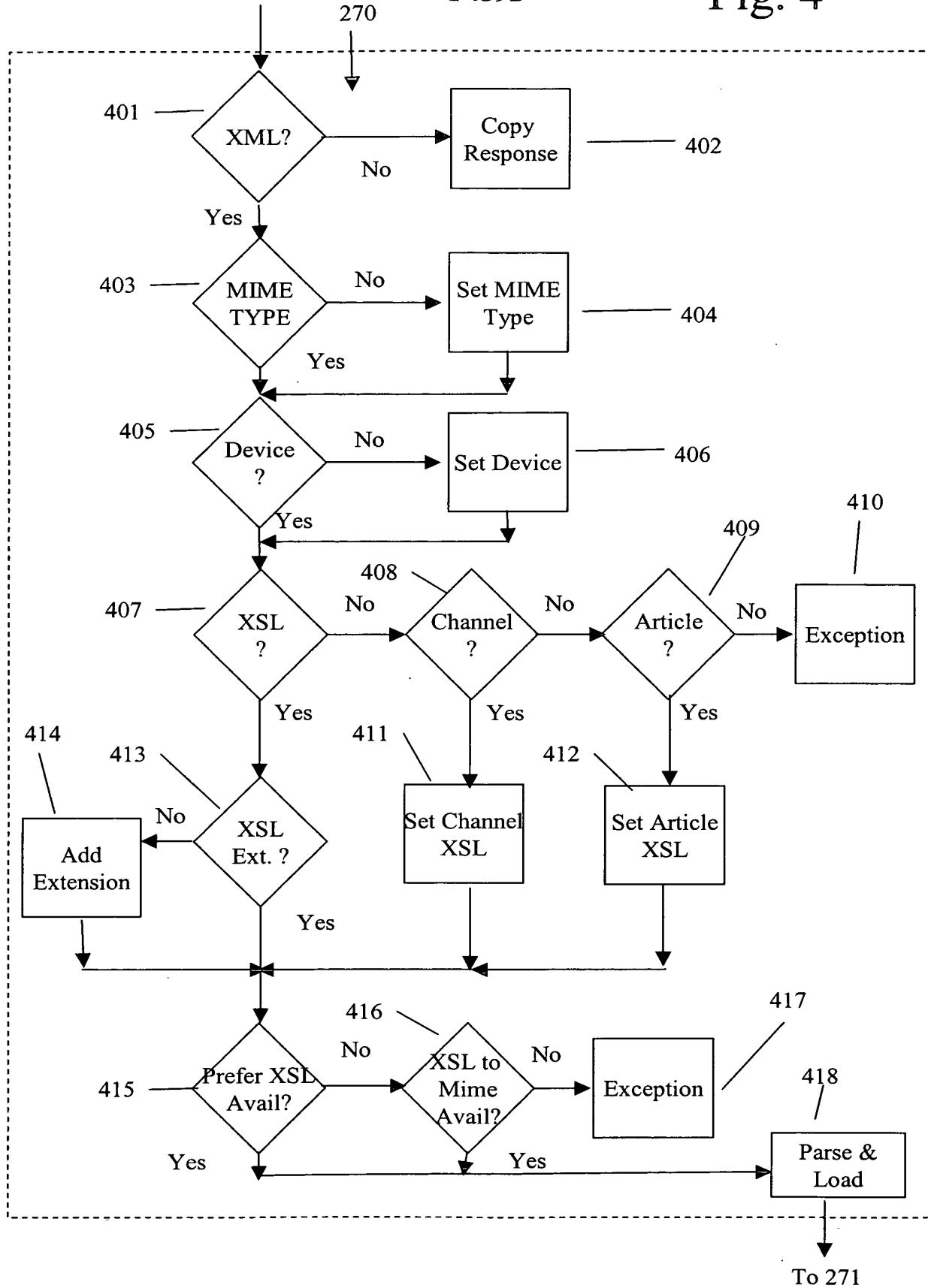


Fig. 3

Fig. 4



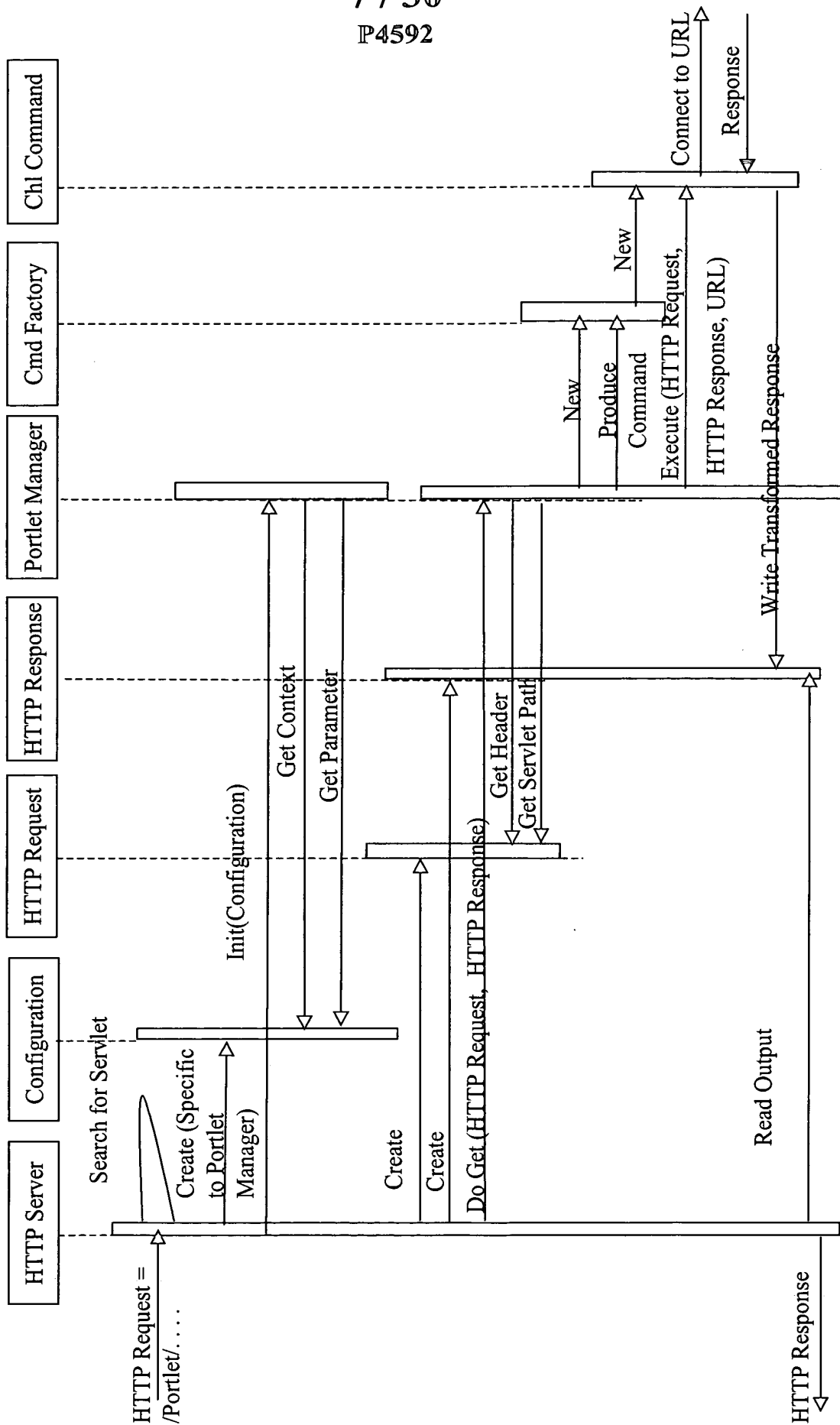


Fig. 5

```
public class PortletManager extends HttpServlet
{
```

```
    /**This method provides information about a servlet used as portlet manager to a user device. In this example the method returns the name of the
    servlet and a copyright notice. */
```

```
    public String getServletInfo()
    {
        return "Channel Manager - Copyright 2000 Sun Microsystems, Inc.";
    }
}
```

```
    /**
```

```
    This method is called when the webserver (HTTP server) loads the servlet. It is only called once for the purpose of initialization. In this case
    configuration path names are loaded to the XSL and XML files.
```

```
    */
```

```
    public void init(ServletConfig configuration)
        throws ServletException
    {
```

```
        System.out.println(getServletInfo());
        super.init( configuration );
        m_aServletContext = configuration.getServletContext();
        m_aServletContext = getServletContext();
        String sRootBase = null;
        String sXslBase = null;
        String sUserBase = null;
        String sNoUserName = null;
        try
```

```
        {
```

```
            sRootBase = new String (getInitParameter("rootbase-uri"));
            sXslBase = new String (getInitParameter("xslbase-uri"));
            sUserBase = new String (getInitParameter("userbase-uri"));
            sNoUserName = new String (getInitParameter("nouser-name"));
        }
```

```
    } catch ( Exception e )
```

```
    {
```

```
        System.err.println("some required init parameter is missing");
        throw new ServletException("init parameter missing");
    }
```

```
    ...
```

```
}
```

FIG. 6

/*The doPost method is called every time a HTTP post request arrives at the web server with a request for an URL for which the servlet was configured initially. Post requests are handled in the same method where get requests are handled, so the doGet() method is called.*/

```
public void doPost( HttpServletRequest request,
                   HttpServletResponse response )
    throws ServletException, IOException
{
    doGet(request, response);
}
```

/*The doGet method is called every time a HTTP get request arrives at the webserver with a request for an URL for which the servlet was configured.*/

```
public void doGet( HttpServletRequest aHttpRequest,
                   HttpServletResponse aHttpResponse )
    throws ServletException, IOException
{
    try
    {
```

/*A string is formed which specifies the URL of the servlet based on the information coming with the request. This string can later be used to specify the servlet as target for a HTTP-request. This will be done once, because this URL can only change if the configuration of the webserver changes. In the latter case the servlet would be unloaded and loaded again.*/

```
// do it only once
if (m_sPrefixPath.length()==0)
{
    // build prefix path (e.g. www.sun.com:8088/portal/CM/)
    String sHostName = "";
    String sContextPath = "";
    String sServletPath = "";
```

```
// get host name part
sHostName = aHttpRequest.getHeader("Host");
```

```
if ((sHostName == null) || (sHostName.length() == 0))
```

```
{
    sHostName = aHttpRequest.getServerName() +
aHttpRequest.getServerPort();
}
```

"," +

```
sContextPath = getContextPath(aHttpRequest, new Object[0]);
```

FIG. 7A

```

sServletPath = aHttpRequest.getServletPath();// get servlet path part
m_sPrefixPath = "http://" + sHostName + sContextPath;
m_aDataFacade.setContextPath(m_sPrefixPath);
m_sPrefixPath += sServletPath;
m_aDataFacade.setPrefixPath(m_sPrefixPath);
// concat
// set path on DataFacade

m_aCommandFactory = new CommandFactory();
// new command factory

```

/**The actual work for resolving the request is done by separate objects. For each command specified in the URL given in the request a new object is instantiated which is responsible to resolve the request. This approach is based on a design pattern called the "Command"-pattern. In the current realization there are the commands „load“, „save“, „article“ and „channel“. The object associated with each command is instantiated by class CommandFactory.

```

*/
// get command pattern and execute
Command aCommand =
    m_aCommandFactory.produceCommand(aHttpRequest);
aCommand.execute(aHttpRequest, aHttpRequestResponse, m_aDataFacade);
}
catch (Exception e)
{
    e.printStackTrace(System.out);
}
}

```

...

```

private ChannelHook m_aChannelHook = null;
private CommandFactory m_aCommandFactory= null;
private DataFacade m_aDataFacade = null;
private ServletContext m_aServletContext = null;
private String m_sPrefixPath = "";
}

```

FIG. 7B

/*The class CommandFactory parses the head of the specified URL for the request for a command, e.g. „channel“. If a known command is recognized, the associated command object is created.*/

```

public class CommandFactory
{
    public Command produceCommand(ServletRequest aRequest)
        throws ServletException
    {
        Command aCommand = null;
        String sUrl = null;
        //The following method makes sure that this is an HTTP request and gets the URL out of the request.
        if(aRequest instanceof HttpServletRequest)
        {
            HttpServletRequest sHttpRequest = (HttpServletRequest) aRequest;
            sUrl = sHttpRequest.getPathInfo();
        }
        else
        {
            throw new ServletException( "Request is not of type HttpServletRequest" );
        }
        //The following method tries to recognize the recent command by comparing the head of the URL with the known set of commands. If a known
        //command is found, the associated class is instantiated and this instance is returned to the caller.*/
        // careful: sort order of if clauses is important
        if( sUrl != null )
        {
            if( sUrl.startsWith(CHANNEL) )
            {
                aCommand = new ChannelCommand();
            }
            if( sUrl.startsWith(ARTICLE) )
            {
                aCommand = new ChannelCommand();
            }
            else if( sUrl.startsWith(LOAD) )
            {
                aCommand = new LoadCommand();
            }
            else if( sUrl.startsWith(SAVE) )
        }
    }
}

```

Fig. 8A

```

{
    aCommand = new SaveCommand();
    System.out.println("- new SaveCommand");
}

if( aCommand == null )
{
    throw new ServletException( "Factory cant produce command for URL" + sUrl );
}

return aCommand;
}

public final static String LOAD      = "/load";
public final static String CHANNEL  = "/channel";
public final static String ARTICLE  = "/article";
public final static String SAVE     = "/save";
}
}
```

Fig. 8B

```

public class LoadCommand extends Command
{
    public void execute(ServletRequest aRequest, ServletResponse aResponse, DataFacade aDataFacade)
        throws ServletException
    {
        try
        {
            String sSessionId = getSessionId(aRequest);
            String sURL = aRequest.getParameter("href");
            String sPreferredMimeType = aRequest.getParameter("Mime");
            String sDevice = aRequest.getParameter("Device");
            String sXSL = aRequest.getParameter("XSL");
            String sMatch = aRequest.getParameter("XSL");
            String sPath = aRequest.getParameter("match");
            String sKey = null;
            String sValue = null;
            Enumeration aParameterList = aRequest.getParameterNames();
            Hashtable aXSLParameters = new Hashtable();
            XmlDocument aFilteredDoc = null;
            boolean bFound = false;
            if ( sMatch == null || sMatch.equals("") )
            {
                /* this should only be done if there is ONLY one other parameter other than Mime, Device or XSL because the order in the Enumeration is NOT
                deterministic and does not equal the order of parameters in the request */
                while (aParameterList.hasMoreElements() && (!bFound) )
                {
                    sKey = (String) (aParameterList.nextElement());
                    if (!sKey.equals("Mime")) &&
                        (!sKey.equals("Device")) &&
                        (!sKey.equals("XSL")) )
                    {
                        bFound = true;
                        sValue = aRequest.getParameter(sKey);
                    }
                }
            }
            else
            {
                /* if there are more parameters the user should set a match parameter to select the key to be used */

```

Fig. 9A

```

sKey = sMatch;
sValue = aRequest.getParameter(sKey);
bFound = true;
}
if ( !bFound || (sKey.equals("href") && (sValue==null||sValue.equals("root")))) )
{
    sKey="href";
    sValue=(new URL(aDataFacade.getRootBase())).toString();
}
// todo: better
if (sKey.equals("href")) {sPath = "Portlet@";}
else if (sKey.equals("subscribed")) {sPath = "Portlet@";}
else if (sKey.equals("class")) {sPath = "Portlet@";}
else if (sKey.equals("context")) {sPath = "PortletUserDevice@";}
else if (sKey.equals("sticky")) {sPath = "PortletUserDevice@";}
else if (sKey.equals("floating")) {sPath = "PortletUserDevice@";}
else if (sKey.equals("rollup")) {sPath = "PortletUserDevice@";}
else if (sKey.equals("minimized")) {sPath = "PortletUserDevice@";}
else if (sKey.equals("maximized")) {sPath = "PortletUserDevice@";}
else if (sKey.equals("sizeable")) {sPath = "PortletUserDevice@";}
else
{
    if (sPath!=null)
    {
        aFilteredDoc = aDataFacade.getFilteredDoc(sSessionId, sPath, sKey, sValue);
    }
    XMLResolver aXMLResolver = new XMLResolver(true);
    aXMLResolver.registerCatalogEntries("com.sun.star.portal.portlet.manager.dtd");
    if (sXSL.equals("none"))
    {
        String sSystemId = "PortletsAll.dtd";
        String sPublicId = aXMLResolver.getPublicId(sSystemId);
        sSystemId = aDataFacade.getPrefixPath()+"dtd/PortletsAll.dtd";
        aFilteredDoc.setDoctype(sPublicId, // public identifier
                               sSystemId, // system identifier
                               null); // no internal subset
    }
    // write it
    if (aResponse instanceof HttpServletResponse)
    {
        ((HttpServletResponse)aResponse).setHeader("Cache-Control", "no-cache");//HTTP1.1
    }
}

```

Fig. 9B

```

((HttpServletResponse)aResponse).setHeader("Pragma", "no-cache"); //HTTP1.0
    }
    OutputStream aOutputStream = aResponse.getOutputStream();
    aResponse.setContentType(sPreferredMimeType);
    aFilteredDoc.write(aOutputStream);
    aOutputStream.flush();
    return;
}
// build path for xsl file which generates response
if ( ( sPreferredMimeType==null) || (sPreferredMimeType.length()==0) )
{
    // no mime parameter set so get it via portal servlet
    sPreferredMimeType = aDataFacade.getPreferredMimeType(sSessionId);
}
if ( ( sDevice==null) || (sDevice.length()==0) )
{
    // no device parameter set so get it via portal servlet
    sDevice = aDataFacade.getDeviceName(sSessionId);
}
if ( ( sXSL==null) || (sXSL.length()==0) )
{
    // no XSL parameter so set direct
    sXSL = "PortletsAll.xsl";
}
else
{
    // if no .xsl extension, add one
    if (sXSL.indexOf(".")!=-1)
    {
        sXSL = sXSL+".xsl";
    }
}
// build first chance path to xsl file
URL aTempURL = new URL(aDataFacade.getXSLBase());
String sXSLBase = aTempURL.getFile();
String sSubMime = sPreferredMimeType.substring(sPreferredMimeType.indexOf("/")+1);
File aXSLMime = new File(sXSLBase, sSubMime);
File aXSLSDevice = new File(aXSLMime, sDevice);
File aXSLSFull = new File(aXSLSDevice, sXSL);

```

Fig. 9C

```

if (!aXSLFull.exists())
{
    // first chance xsl file not there build second chance (no device specific transformation)
    aXSLFull = new File(aXSLMime, sXSL);

    if (!aXSLFull.exists())
    {
        // no xsl found -> error
        throw new ServletException("+++ xsl file not found!!!");
    }
}

aXSLParameters.put("TransformURL", aXSLFull.toURL().toString());
// build parse environment
ValidatingParser aValParser = new ValidatingParser(false);
XmlDocumentBuilder aDocBuilder = new XmlDocumentBuilder();
XSLTransformEngine aTransformer = new XSLTransformEngine();
XmlDocument aSourceDoc = new XmlDocument();
XmlDocument aTransformerDoc = new XmlDocument();
XmlDocument aDrainDoc = new XmlDocument();

// get/config parser and builder
aValParser.setDocumentHandler(aDocBuilder);
aDocBuilder.setParser(aValParser);
aValParser.setEntityResolver(aXMLResolver);
aDocBuilder.setDisableNamespaces (false);

// parse xsl file
InputSource aTransInputSource = new InputSource(aXSLFull.toURL().toString());
aValParser.parse(aTransInputSource);
aTransformerDoc = aDocBuilder.getDocument();
aTransformerDoc = aDataFacade.setParameters(aTransformerDoc, aRequest, aXSLParameters);
// transform
aTransformer.createTransform(aTransformerDoc)
    .transform(aFilteredDoc, aDrainDoc);

TreeWalker aTreeWalker = new TreeWalker(aTransformerDoc.getDocumentElement());
Element aWalkerElement = null;
String sPublicId = "";
String sSystemId = "";
// set doctype (due to error in XT, which doesnt care for xsl:output if DOM tree is emitted)
while ( (sPublicId.equals("")) && ((aWalkerElement = aTreeWalker.getNextElement("xsl:output")) != null) )
{

```

Fig. 9D


```

        sPublicId = aWalkerElement.getAttribute("doctype-public");
    }
    aTreeWalker.reset();

    while ( (sSystemId.equals("")) && ((aWalkerElement = aTreeWalker.getNextElement("xsl:output")) != null) )
    {
        sSystemId = aWalkerElement.getAttribute("doctype-system");
    }
    aDrainDoc.setDoctype(    sPublicId,    // public identifier
                           sSystemId,    // system identifier
                           null);        // no internal subset

    // write it
    if (aResponse instanceof HttpServletResponse)
    {
        ((HttpServletResponse)aResponse).setHeader("Cache-Control", "no-cache");    //HTTP1.1
        ((HttpServletResponse)aResponse).setHeader("Pragma", "no-cache");          //HTTP1.0
    }
    OutputStream aOutputStream = aResponse.getOutputStream();
    aResponse.setContentType(sPreferredMimeType);
    aDrainDoc.write(aOutputStream);
    aOutputStream.flush();

}
catch (TransformException e)
{
    e.printStackTrace();
    throw new ServletException("LoadCommand - TransformException");
}
catch (SAXException e)
{
    e.printStackTrace(System.out);
    throw new ServletException("LoadCommand - SAXException");
}
catch (IOException e)
{
    e.printStackTrace(System.out);
    throw new ServletException("LoadCommand - IOException");
}
}
}

```

Fig. 9E

```

public void execute(ServletRequest aRequest,
                  ServletResponse aResponse,
                  DataFacade aDataFacade)
    throws ServletException
{
    String sSessionId = getSessionId(aRequest);
    String sURL = aRequest.getParameter("href");
    Enumeration aParameterList = aRequest.getParameterNames();
    while (aParameterList.hasMoreElements())
    {
        String sPath = null;
        String sKey = (String) (aParameterList.nextElement());
        if (!sKey.equals("href"))
        {
            String sValue = aRequest.getParameter(sKey);
            // todo: better
            if (sKey.equals("title"))
            {
                sPath = "Portlet/";
            }
            else if (sKey.equals("login"))
            {
                sPath = "Portlet/";
            }
            else if (sKey.equals("password"))
            {
                sPath = "Portlet/";
            }
            else if (sKey.equals("subscribed"))
            {
                sPath = "Portlet/@";
            }
            else if (sKey.equals("upper-left-x"))
            {
                sPath = "PortletUserDevice/";
            }
            else if (sKey.equals("upper-left-y"))
            {
                sPath = "PortletUserDevice/";
            }
            else if (sKey.equals("width"))
            {
                sPath = "PortletUserDevice/";
            }
            else if (sKey.equals("height"))
            {
                sPath = "PortletUserDevice/@";
            }
            else if (sKey.equals("context"))
            {
                sPath = "PortletUserDevice/@";
            }
            else if (sKey.equals("sticky"))
            {
                sPath = "PortletUserDevice/@";
            }
            else if (sKey.equals("floating"))
            {
                sPath = "PortletUserDevice/@";
            }
            else if (sKey.equals("rollup"))
            {
                sPath = "PortletUserDevice/@";
            }
            else if (sKey.equals("minimized"))
            {
                sPath = "PortletUserDevice/@";
            }
            else if (sKey.equals("maximized"))
            {
                sPath = "PortletUserDevice/@";
            }
            else if (sKey.equals("sizeable"))
            {
                sPath = "PortletUserDevice/@";
            }
            else
            {
                if (sPath!=null)
                {
                    sPath = "PortletUserDevice/parameter";
                }
            }
        }
    }
    //todo: rollback
    aDataFacade.setValue(sSessionId, sURL, sPath, sKey, sValue);
}

```

Fig. 10A

```

    }
    // every request needs a response, so I write "OK" as answer for a save request
    try
    {
        HttpServletResponse aHttpResponse = (HttpServletResponse)aResponse;
        PrintWriter aPrintWriter = aResponse.getWriter();
        String sAnswer = new String("<HTML>OK</HTML>");
        aHttpResponse.setContentType("text/html");
        aHttpResponse.setContentLength(sAnswer.length());
        aHttpResponse.setDateHeader("Last-Modified", System.currentTimeMillis());
        aHttpResponse.setHeader("Cache-Control", "no-cache"); //HTTP1.1
        aHttpResponse.setHeader("Pragma", "no-cache"); //HTTP1.0
        aPrintWriter.write(sAnswer);
        aPrintWriter.flush();
    }
    catch (IOException e)
    {
        e.printStackTrace();
        throw new ServletException("SaveCommand - IOException");
    }
}
}

```

Fig. 10B

/*The ChannelCommand has to provide the content of a portlet as a response to a request. The ChannelCommand is derived from the class Command, which is necessary, because of the use of the „Command“-pattern.
*/

```
public class ChannelCommand extends Command
{
    public void execute( ServletRequest aRequest,    ServletResponse aResponse,    DataFacade aDataFacade)
        throws ServletException
    {
        InputStream aDocInputStream = null;
        InputSource aDocInputSource = null;
        InputSource aTransInputSource = null;
        URLConnection aURLConnection = null;
        String sSessionId = getSessionId(aRequest);
        String sEncodedURL = aRequest.getParameter("href");
        String sPreferredMimeType = aRequest.getParameter("Mime");
        String sDevice = aRequest.getParameter("Device");
        String sXSL = aRequest.getParameter("XSL");
        String sDecodedURL = "";
        String sResponseContent = "";
        Hashtable aXSLParameters = new Hashtable();
        try
        {
```

/*If no portlet is specified in the URL information about all available portlets is returned. This will be decided by checking the URL for any additional information. The information about all available portlets is received from a data container called DataFacade. This concept is based on the design pattern Facades.
*/

```
//set URL for root channel list
if ((sEncodedURL==null) ||
    (sEncodedURL.equals("")) ||
    (sEncodedURL.equals("root")))
{
    sDecodedURL = aDataFacade.getRootBase();
}
else
{
    sDecodedURL = URLDecoder.decode(sEncodedURL);
}
```

Fig. 11A

/*The part in the URL which specifies the Portlets is an URL which can be used to retrieve the content of the Portlet. This will be used to build a corresponding URL object, which will be used later on to build an URLConnection.

```

//get URL connection
URL aURL = new URL(sDecodedURL);
URLConnection = aURL.openConnection();
URLConnection.setUseCaches(false);
aXSLParameters.put("ProviderURL", aURL.toString());

```

/*In the following method, all additional fields which are specified in the request, are copied to the new request. These fields can include, for example, the name of the browser used on the client side, that means in the user device.

```

// tunnel properties
java.util.Enumeration aHeaderNameList = ((HttpServletRequest) aRequest).getHeaderNames();
while (aHeaderNameList.hasMoreElements())
{
    String sKey = (String) aHeaderNameList.nextElement();
    String sValue = ((HttpServletRequest) aRequest).getHeader(sKey);
    aURLConnection.setRequestProperty(sKey, sValue);
}

```

/*The additional MIME types, which are supported by the portlet manager, are added to a list of accepted MIME types and this list will be added to the new request.

```

// set own mime types, because some devices accept some mime types which make them crash...
String sSupportedMimeTypes = aDataFacade.getSupportedMimeTypes(sSessionId);
aURLConnection.setRequestProperty("accept", sSupportedMimeTypes);

```

/*The provider of the portlet content is connected and the respective content is read out by using an InputStream

```

// get connection to URL
aURLConnection.connect();
InputStream aProviderResponse = aURLConnection.getInputStream();

```

/*In case of a HTTP connection the information in the HTTP header can be used to recognize the MIME type of the response. If the HTTP protocol is not used, the extension of the specified URL is checked.

```

if ( aURL.getProtocol().equals("http") )
{
    // get content type
    sResponseContent = aURLConnection.getContentType();
}
else

```

Fig. 11B

```

/* If it is recognized that a XML file is requested, it is tried to guess which kind of XML file it is by analyzing the DOCTYPE field in the header
of the XML file. In the case that an XML file based on a certain DTD is recognized, the response type is set to the associated name.
*/
{

```

```

    // protocol is not http, so get content via file
    if (sDecodedURL.endsWith(".xml"))
    {
        // seems to be an xml file, so get doctype content
        aProviderResponse.mark(1024);
        byte[] aBuffer = new byte[1000];
        aProviderResponse.read(aBuffer);
        aProviderResponse.reset();
        String aSearchString = new String(aBuffer);
        int nDoctypePosition = aSearchString.indexOf("<!DOCTYPE ");
        if (nDoctypePosition == -1)
        {
            // unknown xml, send as binary
            sResponseContent = "";
        }
        else
        {
            // found "doctype", determine doctype
            String aTokenizerFeed = aSearchString.substring(nDoctypePosition);
            StringTokenizer aTokenizer = new StringTokenizer(aTokenizerFeed, " ");
            // get doctype
            aTokenizer.nextToken();
            String sResult = aTokenizer.nextToken();
            if (sResult.equals("Channels"))
            {
                sResponseContent = "text/vnd.sun.xml.Channels";
            }
            else if (sResult.equals("Article"))
            {
                sResponseContent = "text/vnd.sun.xml.Article";
            }
            else
            {
                // unknown xml, send as binary
                sResponseContent = "";
            }
        }
    }
}

```

Fig. 11C

```

    }
}
else
{
    /*If it is not a XML file, the class URLconnection guesses the content type of the response stream.
    */
    //no xml file, so start guessing
    sResponseContent = aURLConnection.guessContentTypeFromStream(
        aProviderResponse);
    if (sResponseContent==null)
    {
        //okay, now I'm helpless
        sResponseContent="";
    }
}

aXSLParameters.put("ProviderMimeType", sResponseContent);

// xml response?
if (!sResponseContent.startsWith("text/vnd.sun.xml."))
{
    /*If the response content is not in a XML format handled by the portlet manager, the response is returned as response to the original request
    without any modification.
    */
    // upps, no xml, so simply tunnel through as raw data
    aResponse.setContentType(sResponseContent);
    if (aResponse instanceof HttpServletResponse)
    {
        ((HttpServletResponse) aResponse).setDateHeader("Last-Modified", System.currentTimeMillis());
    }

    /*The input stream of the response is copied to the output stream of the response of the original request.
    */
    InputStream aURLConnectionInputStream = aProviderResponse;
    OutputStream aResponseOutputStream =
        aResponse.getOutputStream();

    byte[] aBuffer    = new byte[1024];

```

Fig. 11D

```

int iReadLength = 0;
int iReadLengthSum = 0;

while ( (iReadLength=
(aURLConnectionInStream.read(aBuffer)))!= -1 )
{
    aResponseOutputStream.write(aBuffer,0,iReadLength);

    iReadLengthSum += iReadLength;
}
// unfortunately available() not possible, so I have to use a buffer and set filelength at last
aResponse.setContentLength(iReadLengthSum);
aResponseOutputStream.flush();
return;
}
else
{
    /*If no preferred MIME type, device type or XSL-styleSheet specified with the request exists, the associated default type is used.
    */

    // yes, so build path for xsl file which generates response
    if ( (sPreferredMimeType==null) || (sPreferredMimeType.length()==0) )
    {
        // no mime parameter set so get it via portal servlet
        sPreferredMimeType = aDataFacade.getPreferredMimeType(sSessionId);

    }
    if ( (sDevice==null) || (sDevice.length()==0) )
    {
        // no device parameter set so get it via portal servlet
        sDevice = aDataFacade.getDeviceName(sSessionId);
    }

    if ( (sXSL==null) || (sXSL.length()==0) )
    {
        /*If channels are processed, the channel stylesheet is used, if articles are processed, the article stylesheet is used.
        */

        // no XSL parameter set so get via content
        String sSubMime = sResponseContent.substring(17);
        if (sSubMime.equals("Channels"))
        {

```

Fig. 11E


```

sXSL = "Channels.xml";
    }
    else if (sSubMime.equals("Article"))
    {
        sXSL = "Article.xml";
    }
    else
    {
        throw new ServletException(
            "+++ no correct xsl type!!!");
    }
}
else
{
    /*If a XSL parameter is specified with the request, this stylesheet is used.*/
    // if no .xsl extension, add one
    if (sXSL.indexOf(".") == -1)
    {
        sXSL = sXSL + ".xsl";
    }
}
}

```

/*The path to find the XSL stylesheet file is built. First, a device specific file is searched for in a subdirectory with the name of the device. If this file is not available, the more generic device independent stylesheet is used.
*/

```

// build first chance path to xsl file
URL aTempURL = new URL(aDataFacade.getXSLBase());
String sXSLBase = aTempURL.getFile();
String sSubMime = sPreferredMimeType.substring(
    sPreferredMimeType.indexOf("/") + 1);
File aXSLMime = new File(sXSLBase, sSubMime);
File aXSLDevice = new File(aXSLMime, sDevice);
File aXSLFull = new File(aXSLDevice, sXSL);
if (!aXSLFull.exists())
{
    // first chance xsl file not there build second chance (no device specific transformation)
    aXSLFull = new File(aXSLMime, sXSL);
    if (!aXSLFull.exists())
    {
        // no xsl found -> error
    }
}

```

Fig. 11F

```

        throw new ServletException(
            "+++ "+aXSLFull.getAbsolutePath()+
            " file not found!");
    }
}

//All the objects needed to parse XML-documents and for the XSL transformation are set up.
// build parse environment
ValidatingParser aValParser = new ValidatingParser(true);
XmlDocumentBuilder aValDocBuilder = new XmlDocumentBuilder();
ValidatingParser aParser = new ValidatingParser(false);
XmlDocumentBuilder aDocBuilder = new XmlDocumentBuilder();
XSLTransformEngine aTransformer = new XSLTransformEngine();
XmlDocument aSourceDoc = null;
XmlDocument aTransformerDoc = null;
XmlDocument aDrainDoc =
    new XmlDocument();
// hook own entity resolver for finding dtds
XMLResolver aXMLResolver = new XMLResolver(true);
aXMLResolver.registerCatalogEntries("com.sun.star.portal.channel.dtd");
// get/config parser and builder
aValDocBuilder.setParser(aValParser);
aValParser.setEntityResolver(aXMLResolver);
aValDocBuilder.setDisableNamespaces(false);

aDocBuilder.setParser(aParser);
aParser.setEntityResolver(aXMLResolver);
aDocBuilder.setDisableNamespaces(false);

/*Parse the received response as an XML document and hold the whole document as a DOM tree in memory.
*/

// parse received xml validating
aDocInputSource = new InputSource(aProviderResponse);
aDocInputSource.setSystemId(sDecodedURL);
aValParser.parse(aDocInputSource);
aSourceDoc = aValDocBuilder.getDocument();

//The XSL stylesheet is parsed and loaded into a memory.
// parse xsl file NON validating
aTempURL = aXSLFull.toURL();
aXSLParameters.put("TransformURL", aTempURL.toString());
aTransInputSource = new InputSource(aTempURL.toString());

```

Fig. 11G

```

aParser.parse(aTransInputSource);
aTransformerDoc = aDocBuilder.getDocument();

/*If the loaded document is a list of channels, this document is modified in a memory to which a user is not subscribed or of which the MIME
type is not accepted for the response. This is necessary, because such content could not be displayed on a user device.
*/

if (sResponseContent.equals("text/vnd.sun.xml.channels"))
{
    Element aRootElement = aSourceDoc.getDocumentElement();
    TreeWalker aRootWalker = new TreeWalker(aRootElement);
    Element aChannelElement = null;
    // walk through channel elements
    while ( (aChannelElement = aRootWalker.getNextElement("Channel")) != null)
    {
        // set subscribed attribute
        String sHref = aChannelElement.getAttribute("href");
        if (aDataFacade.isSubscribed( sSessionId, sHref))
        {
            aChannelElement.setAttribute("subscribed", "true");
        }
        else
        {
            aChannelElement.setAttribute("subscribed", "false");
        }
    }
    TreeWalker aChannelWalker = new TreeWalker(aChannelElement);
    Element aMimeElement = null;
    boolean bMimeAccepted = false;
    // walk through mime-type elements of channel
    while (((aMimeElement = aChannelWalker.getNextElement(
        "mime-type")) != null) && (!bMimeAccepted) )
    {
        Node aNode = aMimeElement.getFirstChild();
        String sMimeType = new String(aNode.getNodeValue());
        bMimeAccepted = aDataFacade.isMimeTypeAccepted( sSessionId, sMimeType);
    }
    // set accepted attribute
    if (bMimeAccepted)
    {
        aChannelElement.setAttribute( "accepted", "true");
    }
}

```

Fig. 11H

```

else
{
    aChannelElement.setAttribute("accepted", "false");
}
}

/*If the loaded document is an article, it is checked, if this MIME type is accepted as a response.
*/
else if(sResponseContent.equals("text/vnd.sun.xml.Article"))
{
    Element aRootElement = aSourceDoc.getDocumentElement();
    TreeWalker aRootWalker = new TreeWalker(aRootElement);
    Element altemElement = null;

    // walk through item elements
    while ( (altemElement = aRootWalker.getNextElement("Item")) != null)
    {
        TreeWalker altemWalker = new TreeWalker(altemElement);
        Element aMimeElement = null;
        boolean bMimeAccepted = false;
        // walk through mime-type elements of item
        while (((aMimeElement = altemWalker.getNextElement(
            "mime-type")) != null) && (!bMimeAccepted) )
        {
            Node aNode = aMimeElement.getFirstChild();
            String sMimeType = new String(aNode.getNodeValue());
            bMimeAccepted = aDataFacade.isMimeTypeAccepted( sSessionId, sMimeType);
        }
        // set accepted attribute
        if (bMimeAccepted)
        {
            altemElement.setAttribute( "accepted", "true");
        }
        else
        {
            altemElement.setAttribute( "accepted", "false");
        }
    }
}

```

Fig. 11I

```

/*The global parameters for the XSL transformation are set and the loaded XML document is transformed according to the rules in the loaded
XSL stylesheet.
*/

```

```

aTransformerDoc = aDataFacade.setParameters( aTransformerDoc, aRequest, aXSLParameters);
// transform

```

```

aTransformer.createTransform(aTransformerDoc)
               .transform(aSourceDoc,aDrainDoc);

```

```

/*The outputstream for the response is obtained and the transformed XML document is streamed, which now can be, for example, HTML or
WML to this stream. The webserver delivers this stream as the response of the original request to the client.
*/

```

```

// write it
OutputStream aOutputStream = aResponse.getOutputStream();
aResponse.setContentType(sPreferredMimeType);
aDrainDoc.write(aOutputStream);
aOutputStream.flush();

```

```

}

```

```

} catch (...)

```

```

}

```

```

}

```

Fig. 11J

Fig. 12

A	B
C	
D	
E	
F	